TA-E90ES

SERVICE MANUAL

US Model
AEP Model

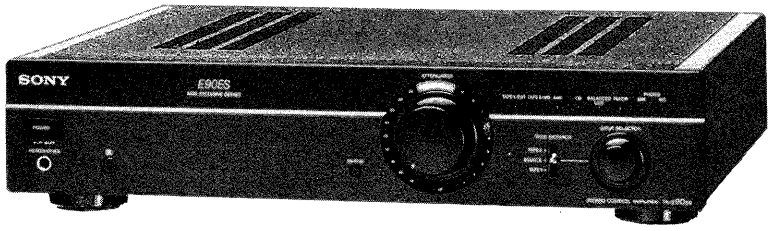


PHOTO : BLACK

SPECIFICATIONS

System

Low-noise FET high gain, NFB type equalizer amplifier
Low noise FET, single stage differential, MOS FET push-pull output, flat amplifier

Total harmonic distortion at rated 20 Hz - 20 kHz
0.003%

Intermodulation (IM) distortion at rated output 60 Hz : 7 kHz = 4 : 1
0.003%

Residual noise at network A
Less than 9 μV

Frequency response
PHONO MM: RIAA equalization curve ±0.2 dB
TAPE1/DAT, TAPE2/MD, AUX, CD,
TUNER: 3 Hz - 300 kHz $^{+0}_{-3}$ dB

S/N (network)
PHONO MC (0.5 mV): 78 dB (A)
MM (5 mV): 95 dB (A)
TAPE1/DAT, TAPE2/MD, AUX, CD,
TUNER: 105 dB (A)

Muting
– ∞ dB

Input

Input sensitivity
PHONO MC: 0.25 mV, 100 ohms
MM: 2.5 mV, 50 kilohms
TAPE1/DAT, TAPE2/MD, AUX, CD
TUNER: 150 mV, 20 kilohms
CD (BALANCED): 150 mV, 20 kilohms

Maximum input capability (1 kHz)
PHONO (1 kHz, THD 0.01%) MC: 10 mV
MM: 200 mV

Output

Output voltage impedance
TAPE1/DAT, TAPE2/MD: 150 mV, 1 kilohms
PRE OUT: 1.5 V, 300 ohms
BALANCED OUTPUT: 3 V, 600 ohms
HEADPHONES: 25 milliwatts (at 8 ohms)

General

Power requirements
U.S.A. model: 120 V AC, 60 Hz
European countries model: 220 - 230 V AC, 50/60 Hz

Power consumption
20 W

Dimensions (approx.) (w/h/d)
430 × 100 × 360 mm (17 × 4 × 14 1/4 inches)
incl. projecting parts and controls

Mass (approx.)
10.3 kg (22 lb. 11 oz)

Supplied accessories

Remote commander (remote) RM-J90(1)
Sony batteries SUM-3(NS) (2)
Audio connecting cord (1)

Design and specifications are subject to change without notice.

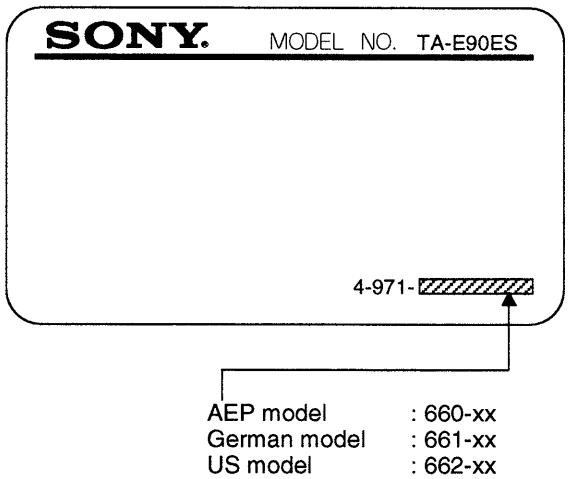
使用時は添付資料も参照のこと
Refer to the additional documents.

STEREO PREAMPLIFIER

SONY®

— MODEL IDENTIFICATION —

(Specification Label)



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SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

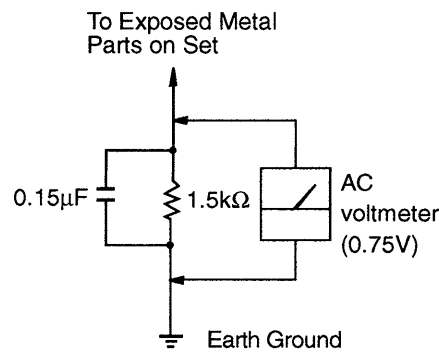


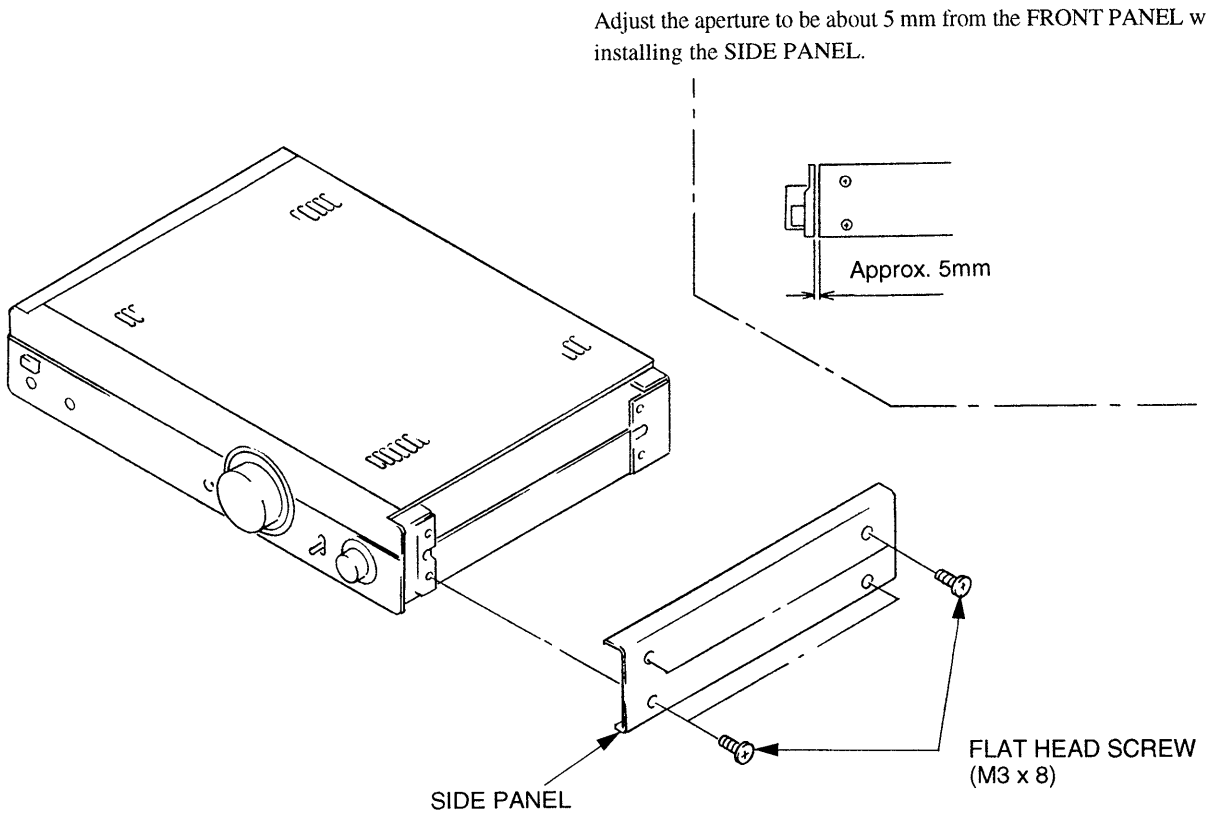
Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
SERVICING NOTE

NOTE FOR INSTALLATION OF THE SIDE PANEL


Adjust the aperture to be about 5 mm from the FRONT PANEL when installing the SIDE PANEL.
Approx. 5mm
FLAT HEAD SCREW
(M3 x 8)
SIDE PANEL

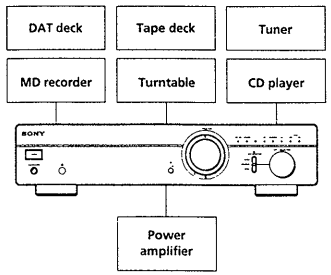
SECTION 2
GENERAL

This section is extracted from instruction manual.

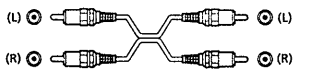
Hooking Up the System

Overview

This section describes how to hook up the preamplifier to a variety of audio components.
Hook up your audio components according to the connection diagrams that follow.



What cords will I need?
The following audio connecting cord (one) comes with your preamplifier:

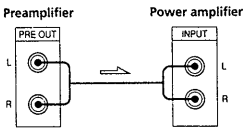


Use one audio connecting cord to connect the preamplifier to a power amplifier, a CD player or a tuner.
Use two balanced cables (equivalent to Canon XLR-3; contact your dealer) when connecting a CD player with balanced line output connectors or a power amplifier with balanced input connectors.
Use two audio connecting cords to connect the preamplifier to: a tape deck, a DAT deck or an MD recorder

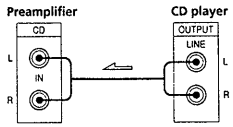
Hookup procedure

- Turn off the power to all components before making any connections.
- Do not connect the AC power cords until all connections are completed.
- Be sure to make connections firmly to prevent hum and noise.
- When connecting an audio cord, be sure to connect the R(right) and L(left) connectors of the preamplifier to the R and L connectors of the other equipment.

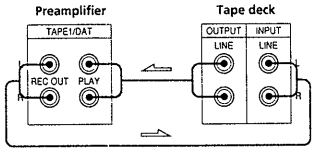
■Power amplifier (unbalanced connection)



■CD player (unbalanced connection)

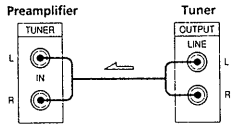


■Tape deck (DAT deck or MD recorder)

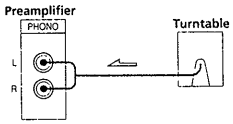


Use the same configurations to connect a tape deck or MD recorder to the TAPE2/MD connectors.

■Tuner



■Turntable

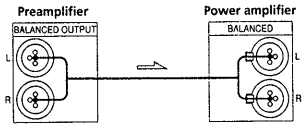


If your turntable has an earth lead
Connect the earth lead to the ⏚ earth terminal to prevent hum.

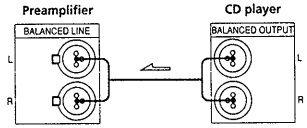
■Balanced connection

Do not use balanced and unbalanced connections at the same time.
Use of both connections at the same time will result in sound deterioration.

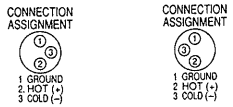
Power amplifier



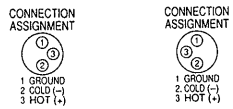
CD player



Connection assignment of balanced cables for European countries model



Connection assignment of balanced cables for U.S.A. model



Connecting the AC power cord

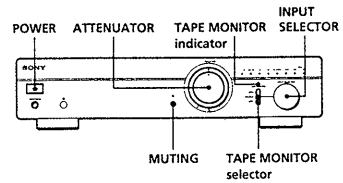
Connect the AC power cords from this preamplifier and the various audio components to a wall outlet.

Where do I go next?

Now you're ready to use your preamplifier.
First, turn on the preamplifier and the audio components you're going to use.

Listening to a Program Source

This section describes how to select and listen to a program source.
Before you begin, make sure you have connected the preamplifier to audio components correctly and firmly as indicated on page 5.



1 Press POWER to turn on the preamplifier.
The indicator of the program source last used flashes for about 8 seconds, then lights.

2 Turn on the power amplifier.

3 Set the TAPE MONITOR selector to SOURCE.
The TAPE MONITOR indicator goes off.

4 Select the program source by turning the INPUT SELECTOR control.
The indicator of the selected program source lights.
If the TAPE MONITOR selector is set to either TAPE 1 or TAPE 2, sound from the audio component connected to TAPE 1 or 2 will be output instead of the selected program source.

5 Start the program source.

6 Adjust the volume by turning the ATTENUATOR control.

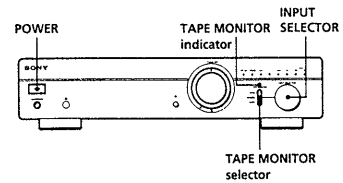
When using a turntable
Ascertain the type of cartridge being used, then, depending on the cartridge type, select PHONO MM or MC by turning the INPUT SELECTOR control.

You can turn the sound off temporarily
Press the MUTING button. Press again to turn the sound on again. If MUTING is on when you turn off the preamplifier, the sound will still be muted the next time you turn on the preamplifier.

When you use headphones
Connect the headphones to the HEADPHONES jack. Output from the speakers will be cut off.

Recording

This section describes how to record a program source.
Before you begin, make sure you have connected the preamplifier to audio components correctly and firmly as indicated on page 5.



1 Press POWER to turn on the preamplifier.

2 Turn on the power amplifier.

3 Select the program source to be recorded by turning the INPUT SELECTOR control.
Make sure to set the TAPE MONITOR selector to SOURCE, otherwise you will not be able to hear the selected program source.

4 Place the recording unit into recording pause.

5 Make the recording level adjustments on the recording unit with the program source playing.

6 Restart the program source.

7 Start recording on the recording unit.

You can monitor the recorded sound
If your cassette deck has separate recording and playback heads, you can monitor the recorded sound by setting the TAPE MONITOR selector to either TAPE 1 or TAPE 2, whichever one is your recording unit.
The TAPE MONITOR indicator will light.

When dubbing a tape
When dubbing from TAPE 1 to TAPE 2, select TAPE 1 in step 3 of the recording procedure.
When dubbing from TAPE 2 to TAPE 1, select TAPE 2 in step 3 of the recording procedure.

Note
If you change the program source by turning the INPUT SELECTOR control during recording, the newly selected program source will be recorded.

SECTION 3
ELECTRICAL ADJUSTMENT

DC Bias Adjustment (with no signal input)

Note:

1. Before measuring, desolder the two test lands of the MAIN board and EQ board (four test lands altogether) and then return the boards to their original positions.

Set up:
Volume:minimum

Adjusting method:

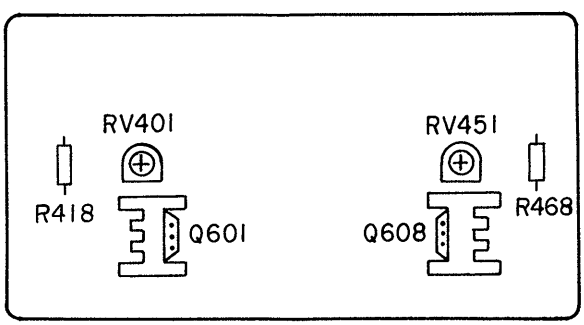
1. Connect a DC volt meter to both edges of the R418 and R468 of the MAIN board and turn on the power supply. Adjust RV401 and RV451 so that the DC volt meter reading satisfies the specified value.
2. Adjust the EQ board in the same way.
3. After completing all adjustments, solder all parts desoldered again.

* Specified Value:200 mV±20 mV

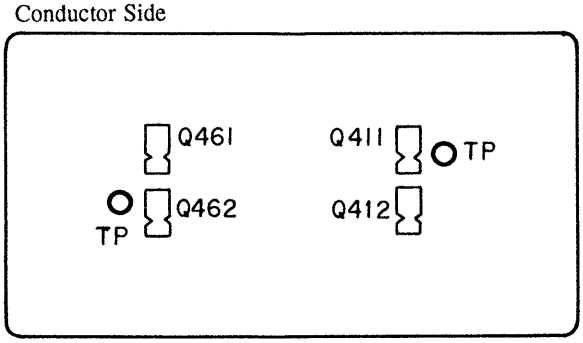
		Measurement Point	Adjustment Point
MAIN BOARD	L-ch	R418	RV401
	R-ch	R468	RV451
EQ BOARD	L-ch	R125	RV101
	R-ch	R175	RV151

Adjustment Location:

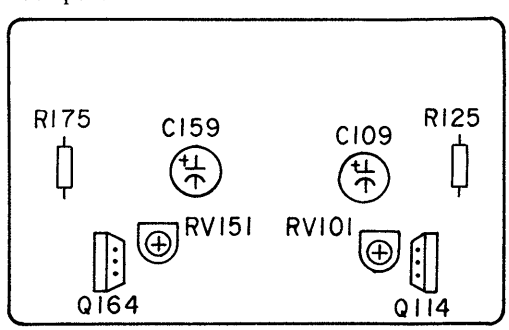
【MAIN BOARD】
Component Side



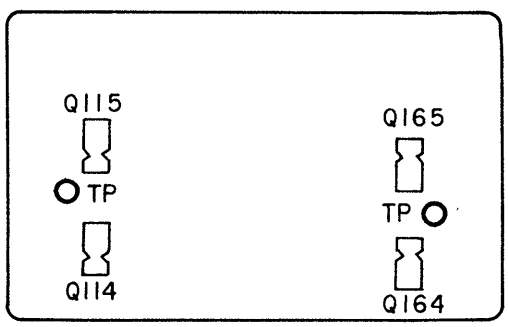
Conductor Side



【EQ BOARD】
Component Side

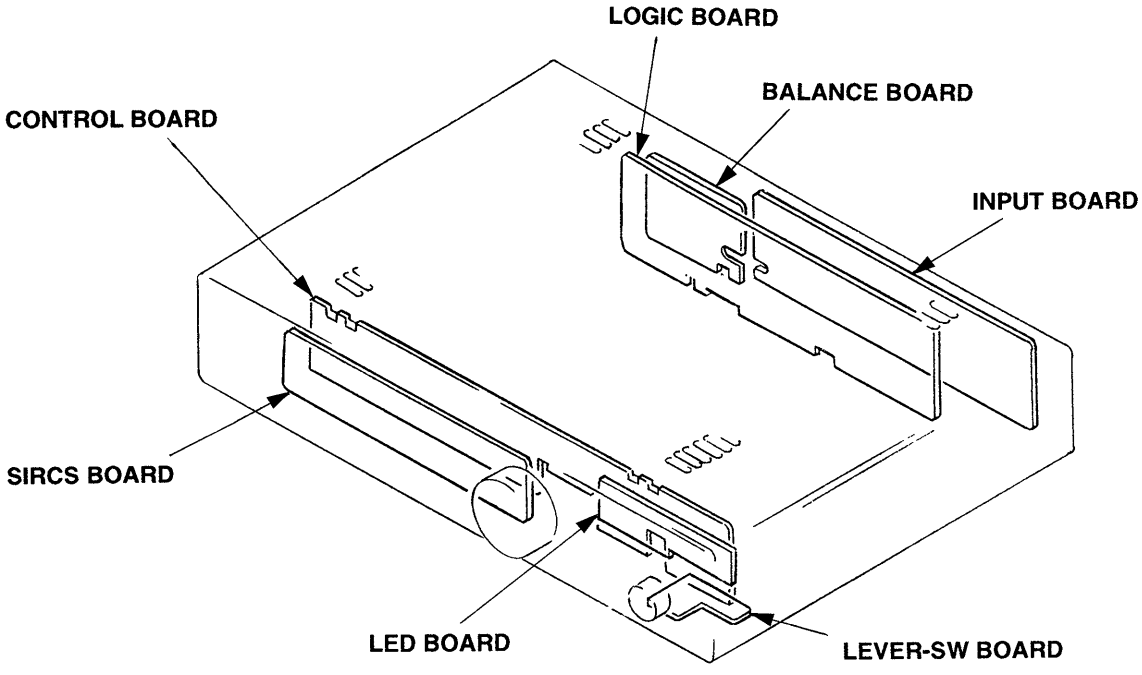


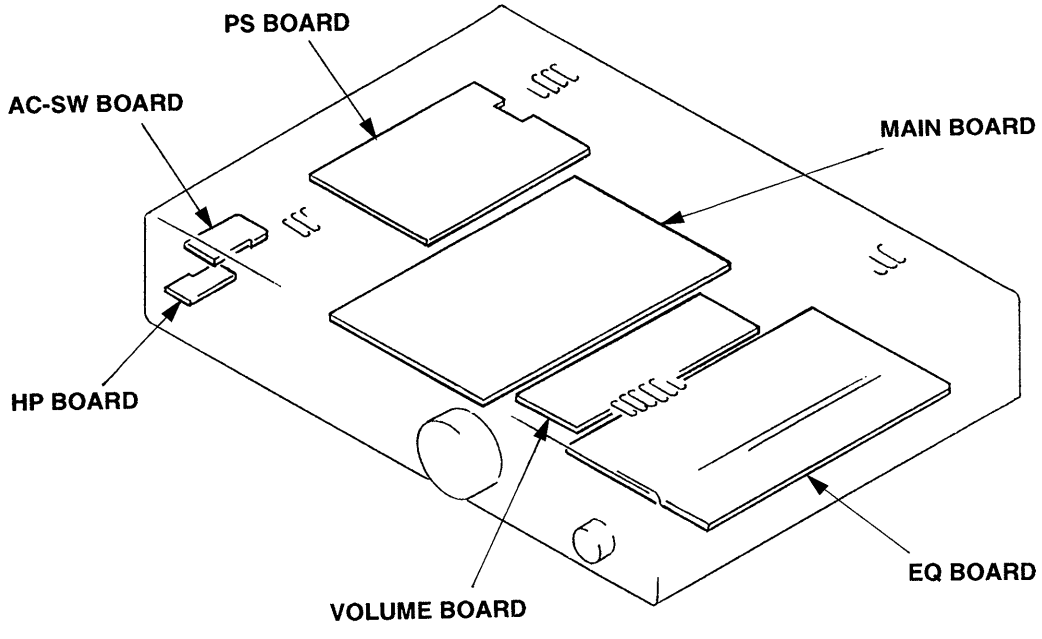
Conductor Side



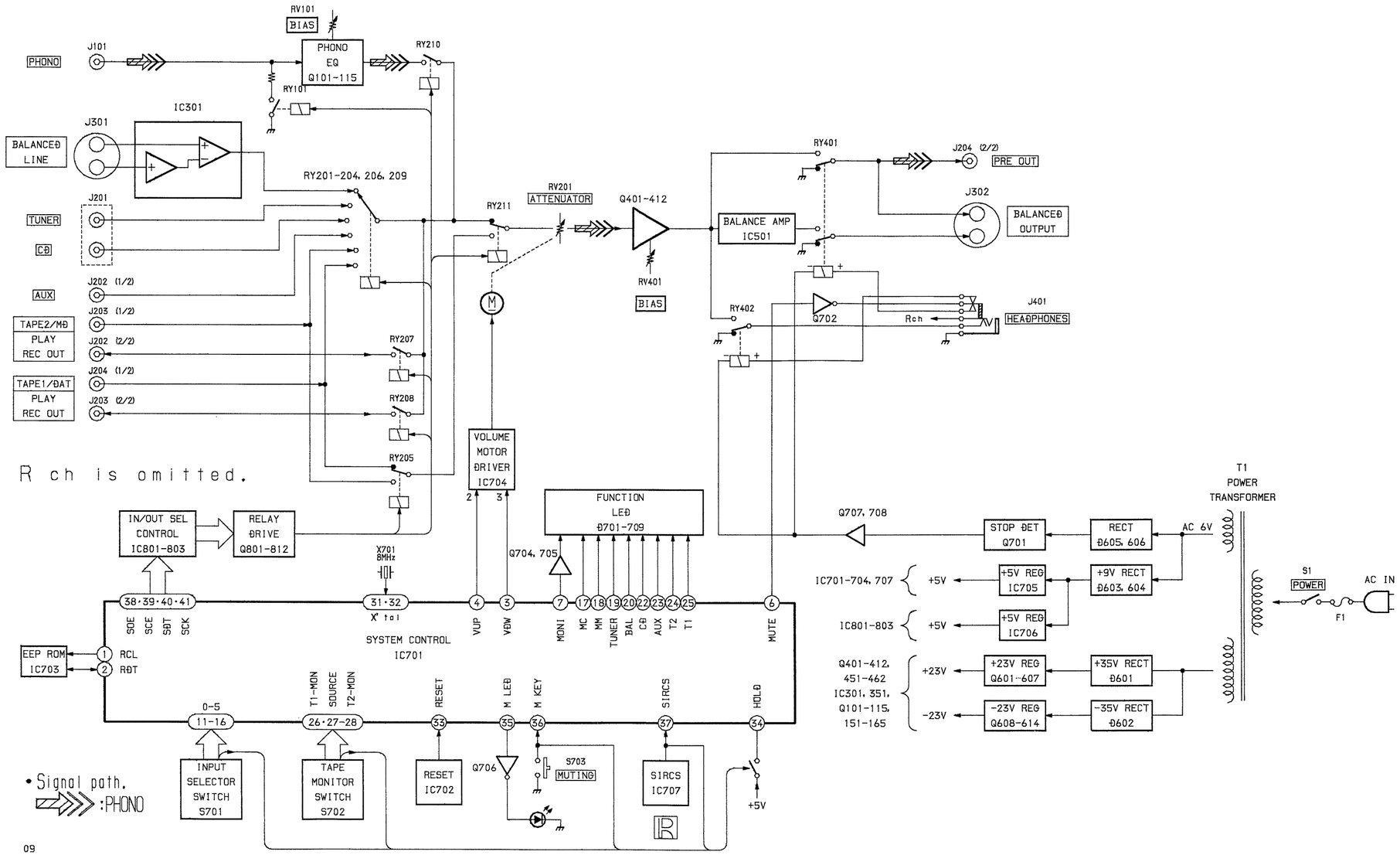
SECTION 4
DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION





4-2. BLOCK DIAGRAM

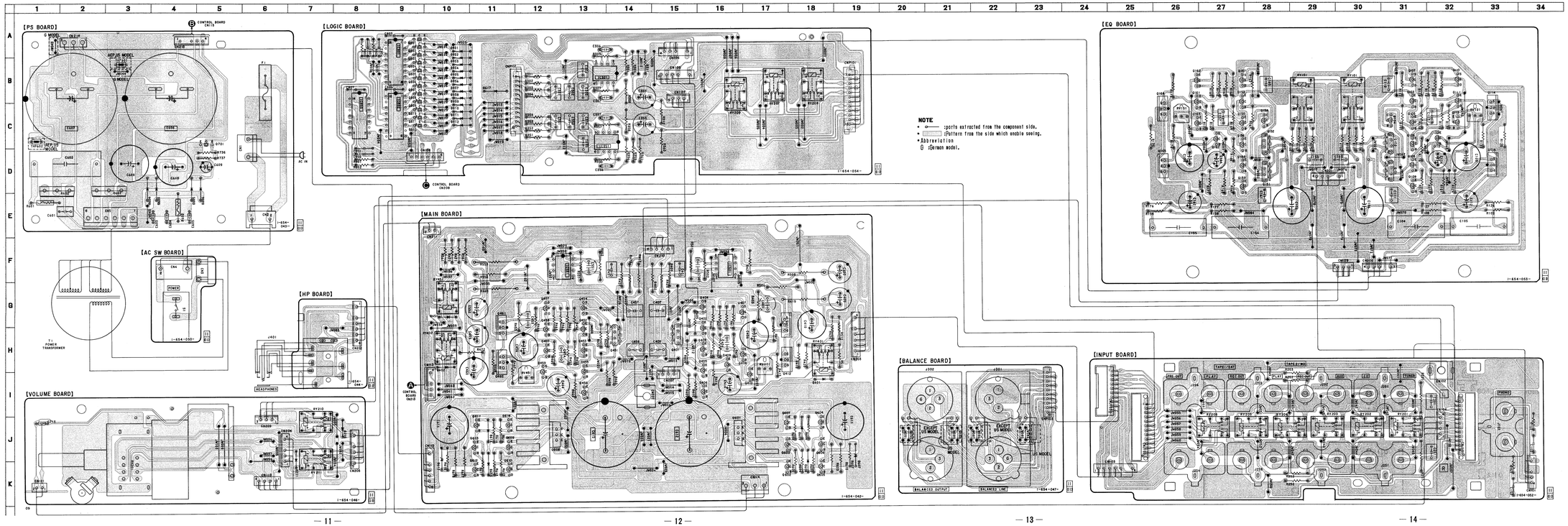


4-3. PRINTED WIRING BOARD — MAIN SECTION —

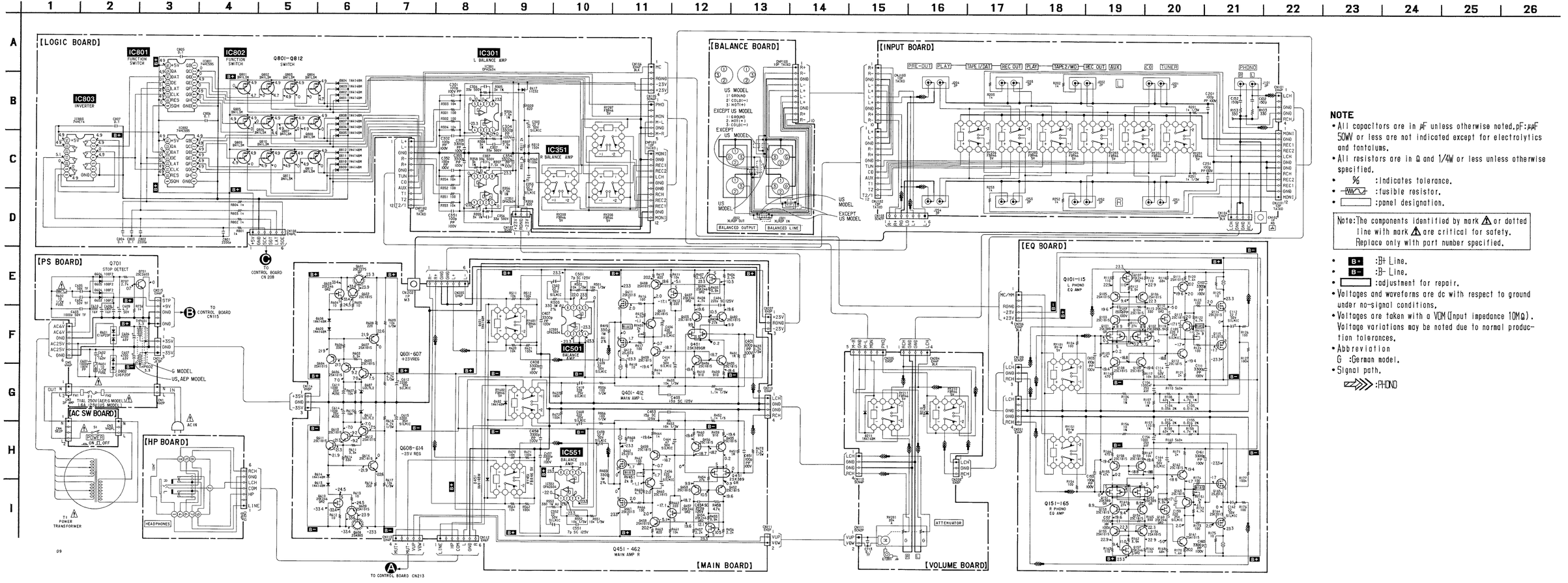
•See page 6 for Circuit Boards Location and see page 19 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D210	J-8	Q157	B-28
D211	K-7	Q158	D-28
D401	I-18	Q159	D-28
D402	H-10	Q160	B-27
D451	G-10	Q161	B-27
D601	E-3	Q162	D-27
D602	E-2	Q163	C-27
D603	E-4	Q164	B-26
D604	E-3	Q165	D-26
D605	E-4	Q401	H-15
D606	E-5	Q402	G-16
D607	J-19	Q403	H-16
D608	K-18	Q404	G-16
D609	J-18	Q405	H-16
D612	K-10	Q406	I-16
D613	K-11	Q407	G-17
D614	J-11	Q408	H-17
D617	B-11	Q409	H-16
D801	A-10	Q410	I-17
D802	A-10	Q411	H-18
D803	B-10	Q412	I-18
D804	B-10	Q451	H-14
D805	B-10	Q452	G-13
D806	B-10	Q453	H-13
D807	B-10	Q454	G-13
D808	B-10	Q455	H-13
D809	B-10	Q456	I-13
D810	C-10	Q457	G-12
D811	C-10	Q458	I-12
D812	C-10	Q459	H-12
		Q460	H-12
IC301	B-14	Q461	G-11
IC351	C-14	Q462	I-11
IC501	F-16	Q601	J-16
IC551	F-13	Q602	K-18
IC801	A-9	Q603	J-18
IC802	C-9	Q604	I-18
IC803	C-8	Q605	K-18
		Q606	J-18
Q101	D-31	Q607	I-18
Q102	C-31	Q608	J-12
Q103	B-31	Q609	J-11
Q104	C-31	Q610	K-11
Q105	C-31	Q611	J-11
Q106	C-31	Q612	K-11
Q107	B-31	Q613	J-11
Q108	D-31	Q614	J-11
Q109	D-31	Q701	C-5
Q110	B-32	Q801	A-9
Q111	B-32	Q802	A-9
Q112	C-32	Q803	B-9
Q113	C-32	Q804	B-9
Q114	B-33	Q805	B-9
Q115	D-33	Q806	B-9
Q151	D-28	Q807	B-9
Q152	C-28	Q808	B-9
Q153	B-28	Q809	C-9
Q154	C-28	Q810	C-9
Q155	C-28	Q811	C-9
Q156	C-28	Q812	C-9



4-4. SCHEMATIC DIAGRAM — MAIN SECTION —



NOTE

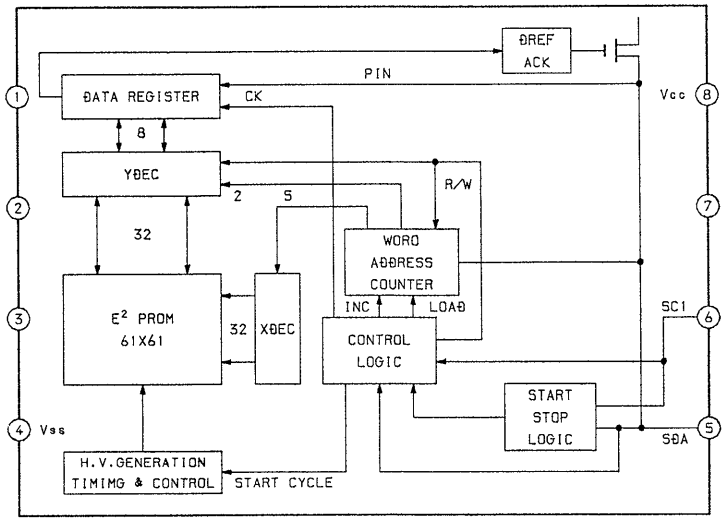
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % :Indicates tolerance.
- :fusible resistor.
- :panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

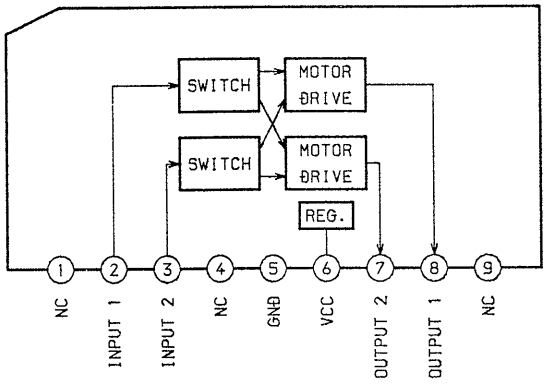
- B+ :B+ Line.
- B− :B− Line.
- :adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Abbreviation
  G :German model.
- Signal path.
  :PHONO

IC BLOCK DIAGRAMS

IC703 X24C01P

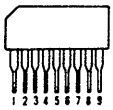


IC704 BA6208



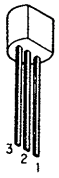
4-5. SEMICONDUCTOR LEAD LAYOUTS

BA6208

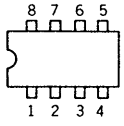


GP1U57XB

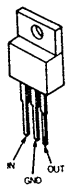
M51943BSL



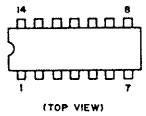
OPA2604AP
X24C01P-S



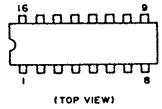
TA7805S



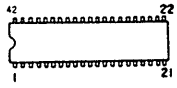
TC74HC14AP



TC74HC595AP

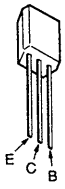


TMP47C200BN-H327

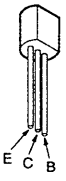


(Top view)

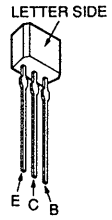
DTA124ES
DTA144ES
2SC2603-EF



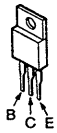
2SA1015-GR



2SA1175-HFE
2SC2785-HFE

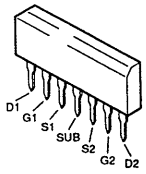


2SA985A-QP
2SC2275A-P
2SK2013-Y
2SJ313-Y

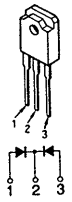


2SK246-GR2

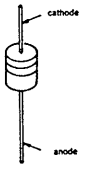
2SK389-GR



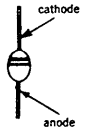
C16P20F
C16P20FR



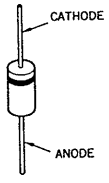
UZL-7L2
11ES2-NTA2B



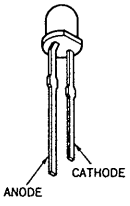
U05G



1N4148M



SEL2810A

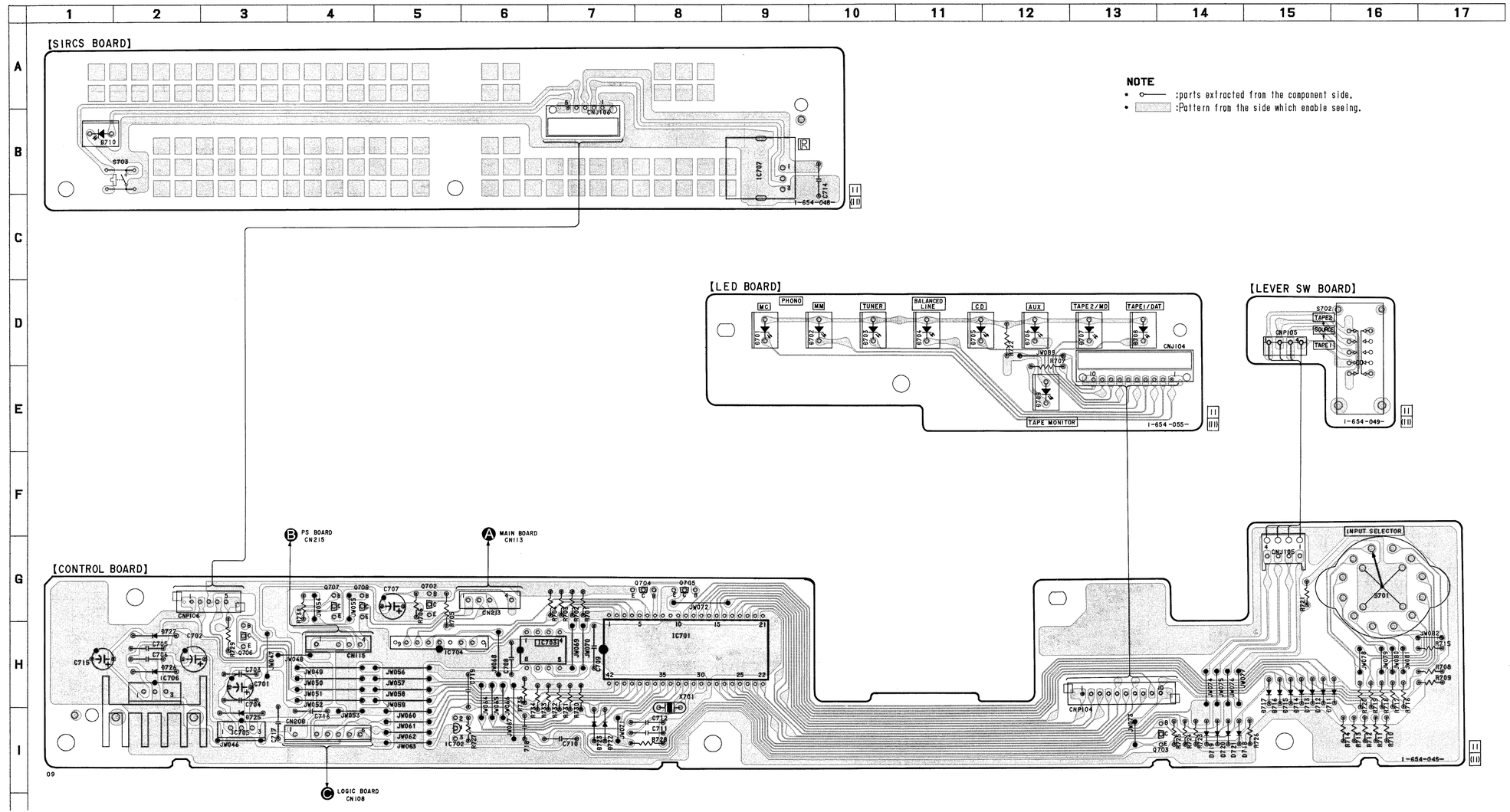


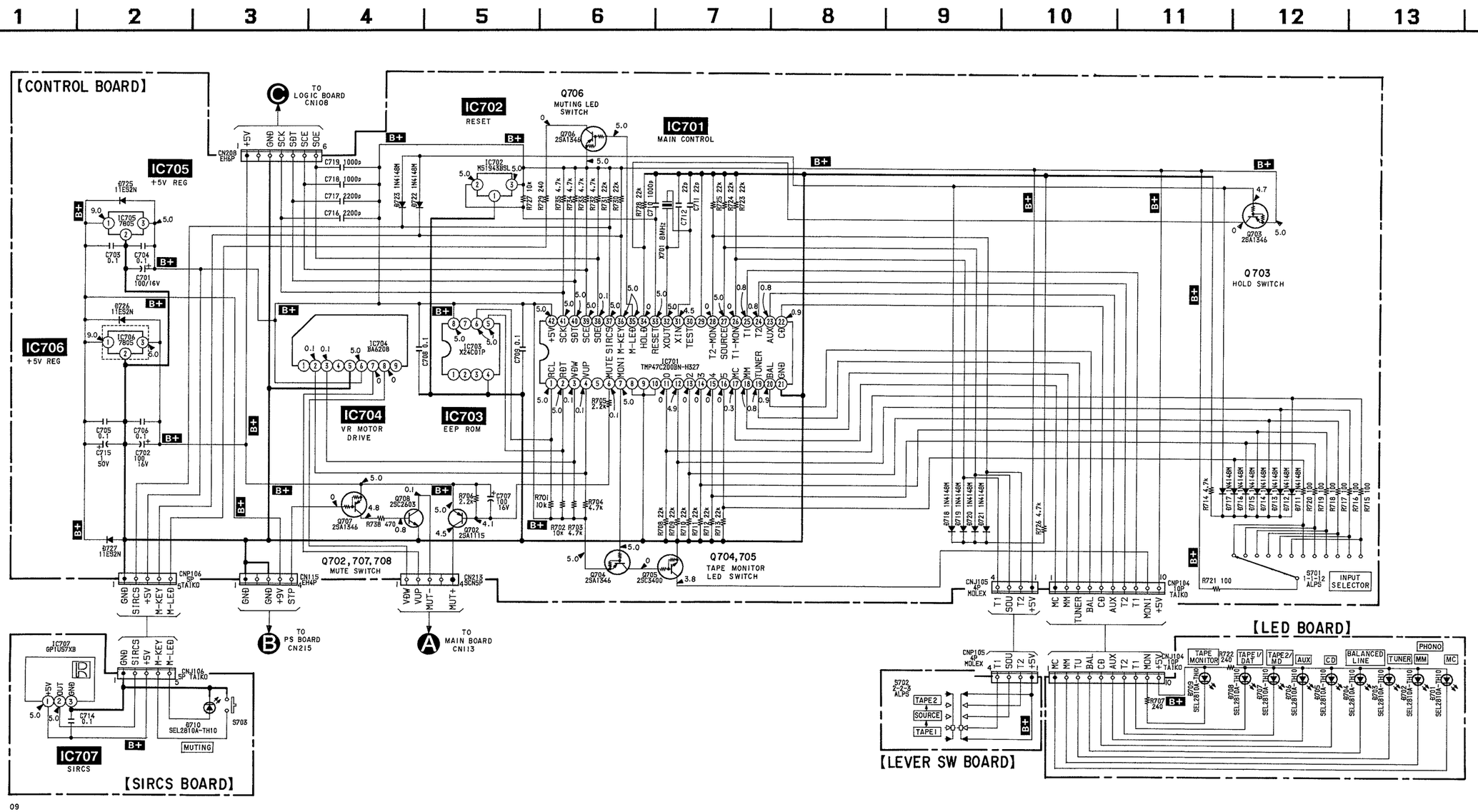
4-6. PRINTED WIRING BOARD — CONTROL SECTION —

•See page 6 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D701	D-9
D702	D-10
D703	D-10
D704	D-11
D705	D-11
D706	D-12
D707	D-13
D708	D-13
D709	E-12
D710	B-1
D711	H-16
D712	H-15
D713	H-15
D714	H-15
D715	H-15
D716	H-15
D717	H-15
D718	I-15
D719	I-14
D720	I-14
D721	I-14
D722	D-7
D723	D-7
D725	I-3
D726	H-2
D727	H-2
IC701	H-8
IC702	I-5
IC703	H-7
IC704	H-5
IC705	I-3
IC706	H-2
IC707	B-9
Q702	G-5
Q703	I-14
Q704	G-8
Q705	G-8
Q706	H-3
Q707	G-4
Q708	G-4





NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ▭ :panel designation.
- **B+** :B+ Line.
- **B−** :B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

4-8. IC PIN FUNTION

· IC701 TMP47C200BN-H327

Pin No.	Pin Name	I/O	Function
1	RCL	O	Clock / Data: Serial data of EEPROM. (X24C01)
2	RDT	I/O	
3	VUP	O	Up / Down: VR motor control signal. (Active : H, Stop : L-L, Brake : H-H)
4	VDW	O	
5	—	—	Not Used. (Open)
6	MUT	O	Mute control signal output when switching. (Mute : H)
7	MONI	O	TAPE MONITOR LED display sigmal. (L : Function LED is turned on.)
8	—	I	Not Used. (Pull down to GND.)
9	—	I	Not Used. (Pull down to GND.)
10	—	I	Not Used. (Pull down to GND.)
11	SW0	I	Relativity position detection signal of rotary switch. (one of them terminal : H, the other terminal : L) Direction from SW5 to SW0, CD → AUX → TAPE2 → TAPE1 → MC → MM → TUNER → BALANCE → CD ···
12	SW1	I	
13	SW2	I	
14	SW3	I	
15	SW4	I	
16	SW5	I	
17	MC	O	Function LED drive signal. (ON : L)
18	MM	O	
19	TUNER	O	
20	BAL	O	
21	GND	—	GND terminal.
22	CD	O	Function LED drive signal. (ON : L)
23	AUX	O	
24	TAPE 2	O	
25	TAPE 1	O	
26	TAPE 1M	I	Signal of TAPE MONITOR SWITCH (one of them : H, the other : L)
27	SOURCE	I	
28	TAPE 2M	I	
29	—	I	Not Used. (Pull down to GND.)
30	TEST	—	Test terminal. (Open)
31	XIN	—	Oscillation signal. 8.19MHz
32	XOUT	—	
33	RESET	I	Reset signal. (Reset : L)
34	HOLD	I	Cancellation of hold mode signal. (Start : H)
35	M-LED	O	MUTING LED drive signal. (ON : L)
36	M-KEY	I	MUTING Switch signal. (Active : L)
37	SIRCS	I	SIRCS signal (Active : L)
38	SOE	O	Serial control signal to function IC. (IC801, 802)
39	SCE	O	
40	SDT	O	
41	SCK	O	
42	VDD	—	Power supply (+5V) terminal.

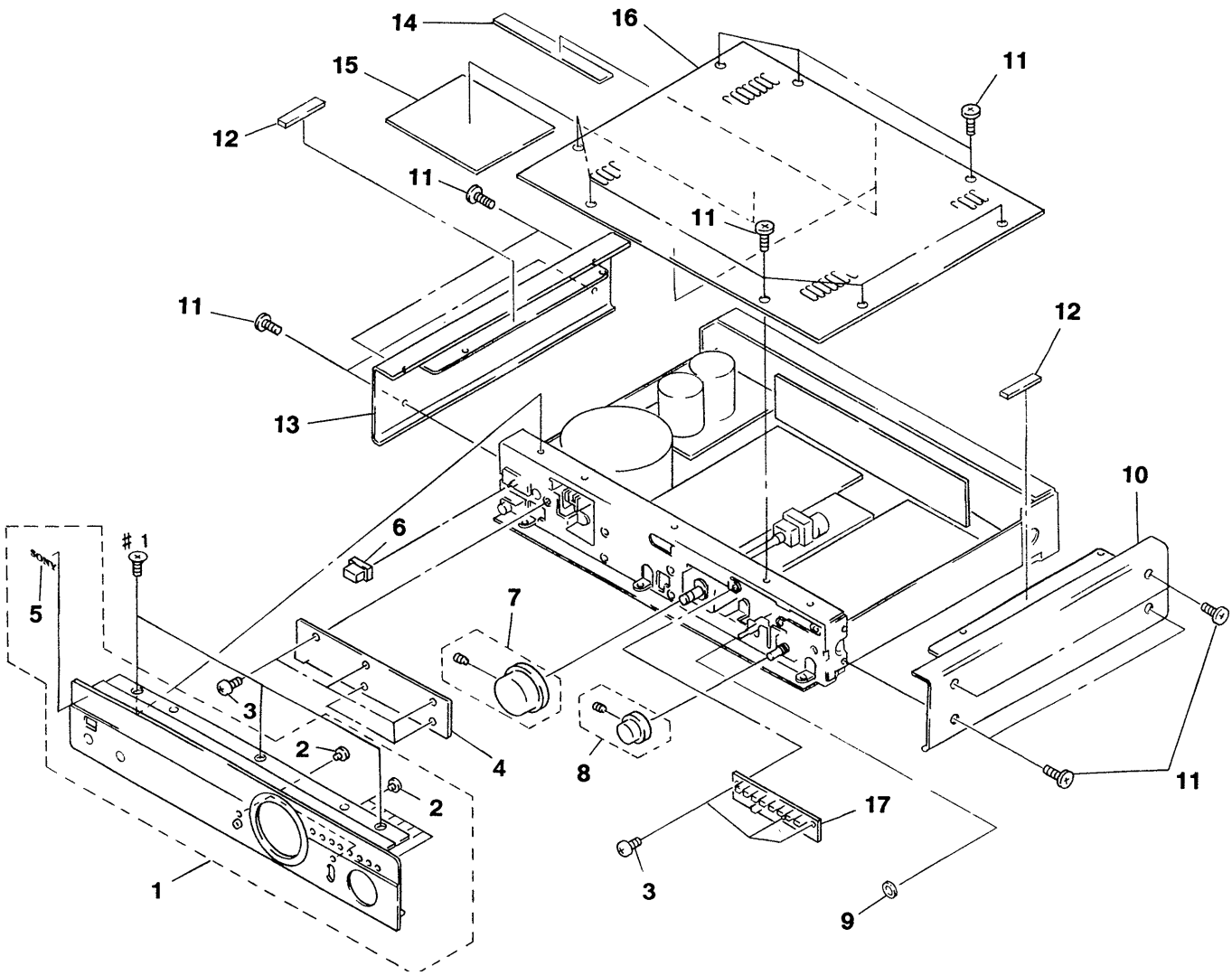
SECTION 5
EXPRODED VIEWS

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  G : German model

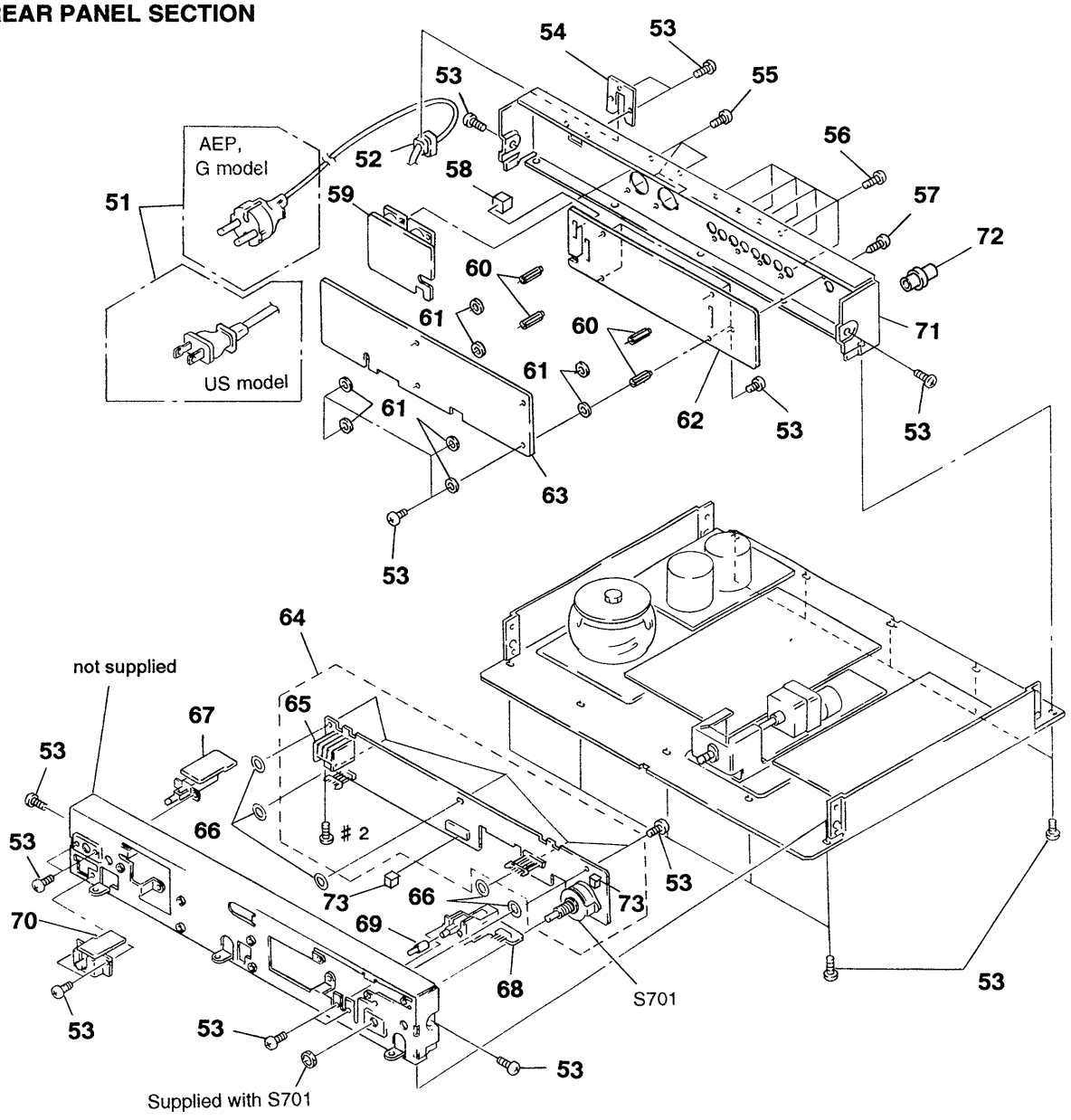
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. FRONT AND SIDE PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	A-4361-172-A	PANEL ASSY, FRONT (US, AEP, G(BLACK))	
1	A-4361-174-A	PANEL ASSY, FRONT (G(GOLD))	
2	4-969-325-01	LENS, LED	
3	4-967-961-01	SCREW (3X8) (SPECIAL)	
* 4	1-654-048-11	SIRCS BOARD	
5	4-942-568-01	EMBLEM (NO. 5), SONY (US, AEP, G(BLACK))	
5	4-942-568-21	EMBLEM (NO. 5), SONY (G(GOLD))	
6	4-969-330-01	KNOB (POWER) (US, AEP, G(BLACK))	
6	4-969-330-11	KNOB (POWER) (G(GOLD))	
7	4-969-322-01	KNOB (DIA. 55) (US, AEP, G(BLACK))	(ATTENUATOR)
7	4-969-322-11	KNOB (DIA. 55) (G(GOLD))	(ATTENUATOR)
8	4-969-323-01	KNOB (DIA. 34) (US, AEP, G(BLACK))	(INPUT SELECT)
8	4-969-323-11	KNOB (DIA. 34) (G(GOLD))	(INPUT SELECT)
9	4-971-312-01	SHEET (DIA. 8), BLIND	
* 10	4-969-320-01	PANEL (R), SIDE (US, AEP, G(BLACK))	
* 10	4-969-320-11	PANEL (R), SIDE (G(GOLD))	
11	4-924-242-11	SCREW (M3X6), FLAT HEAD (US, AEP, G(BLACK))	
11	4-924-242-61	SCREW (M3X6), FLAT HEAD (G(GOLD))	
* 12	4-971-317-01	CUSHION (C)	
* 13	4-969-319-01	PANEL (L), SIDE (US, AEP, G(BLACK))	
* 13	4-969-319-11	PANEL (L), SIDE (G(GOLD))	
14	4-969-347-01	CUSHION	
15	4-971-316-21	DAMPER	
16	4-969-318-01	PLATE, TOP (US, AEP, G(BLACK))	
16	4-969-318-11	PLATE, TOP (G(GOLD))	
* 17	1-654-055-11	LED BOARD	

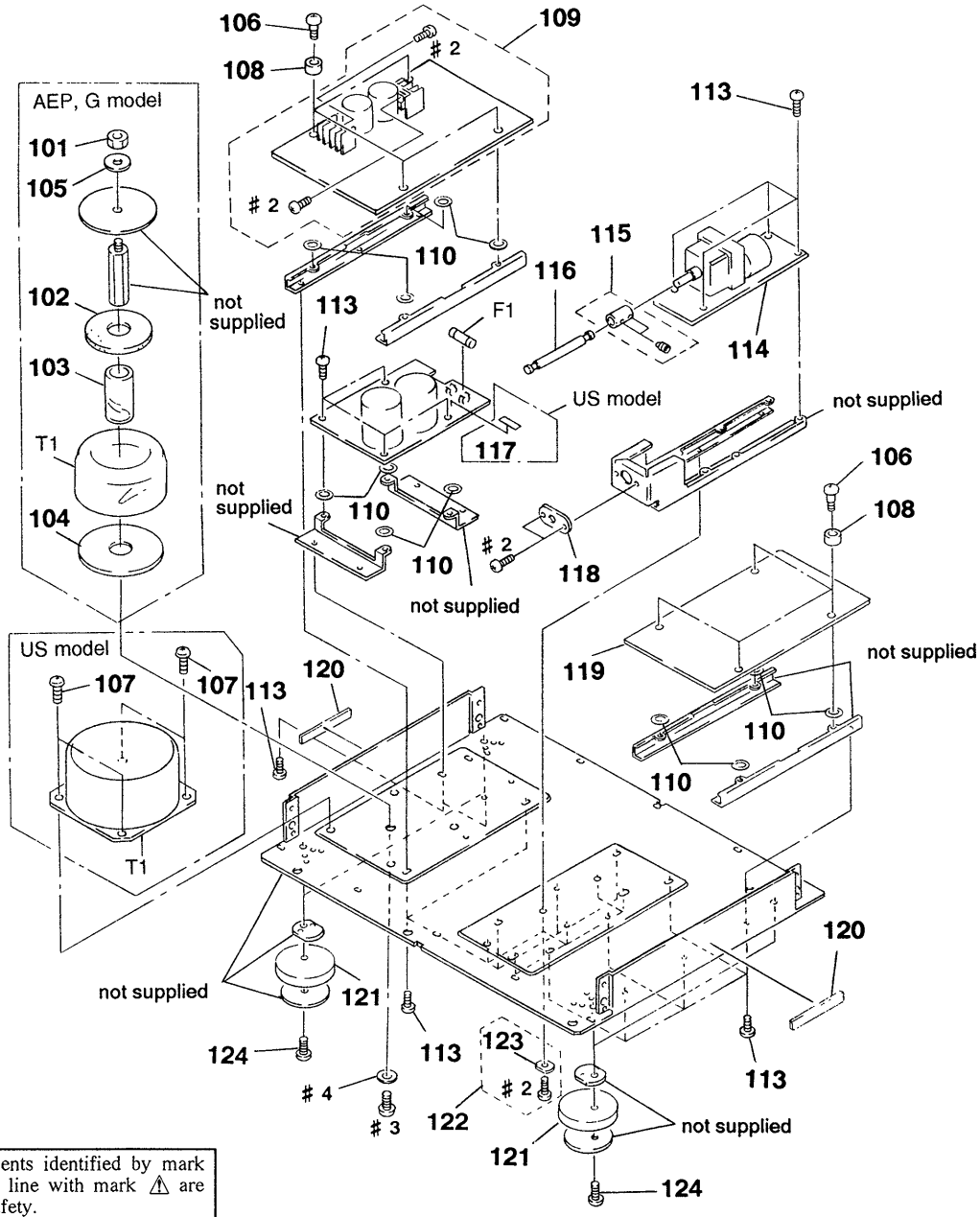
5-2. REAR PANEL SECTION



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
⚠51	1-559-479-11	CORD, POWER (US)	
⚠51	1-575-953-11	CORD, POWER (AEP, G)	
* 52	3-703-244-00	BUSHING (2104), CORD	
53	4-967-961-01	SCREW (3X8) (SPECIAL)	
* 54	4-923-873-01	BRACKET, CORD STOPPER	
55	4-967-959-01	SCREW (3X6)	
56	4-968-977-11	SCREW (3X10), +BVTP	
57	3-704-515-41	SCREW (BV/RING)	
58	4-971-108-01	CUSHION (H)	
* 59	1-654-047-11	BALANCE BOARD	
60	4-969-324-01	BOSS	
61	4-971-658-01	CUSHION (DIA. 10)	
* 62	A-4371-732-A	INPUT BOARD, COMPLETE	
* 63	A-4371-734-A	LOGIC BOARD, COMPLETE	
* 64	A-4371-725-A	CONTROL BOARD, COMPLETE	
* 65	4-363-146-00	HEAT SINK, V. OUT	
66	4-971-099-01	WASHER (P)	
* 67	1-654-050-11	AC-SW BOARD	
* 68	1-654-049-11	LEVER-SW BOARD	
69	4-969-328-01	KNOB, LEVER	
* 70	1-654-044-11	HP BOARD	
* 71	4-969-315-01	PANEL, BACK (AEP, G)	
* 71	4-969-315-11	PANEL, BACK (US)	
72	1-506-113-00	SHORT PLUG	
73	4-971-313-11	CUSHION (A)	
S701	1-572-095-21	SWITCH, ROTARY	

5-3. BOARDS SECTION


AEP, G model
US model
not supplied
not supplied
not supplied

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  G : German model

- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remark
*	1-654-050-11	AC-SW BOARD			
		**********			
		< CONNECTOR >			
* CN3	1-568-226-11	PIN, CONNECTOR 2P			
CN4	1-580-629-11	PIN, CONNECTOR 2P			
		< SWITCH >			
⚠S1	1-554-920-11	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)			
**********					
*	1-654-047-11	BALANCE BOARD			
		**********			
		< CONNECTOR >			
CNP103	1-766-802-11	PIN, CONNECTOR 10P			
		< JACK >			
J301	1-750-786-11	CONNECTOR (XLR TYPE) 3P(BALANCED LINE)			
J302	1-750-785-11	CONNECTOR (XLR TYPE) 3P(BALANCED OUTPUT)			
**********					
*	A-4371-725-A	CONTROL BOARD, COMPLETE			
		**********			
*	4-363-146-00	HEAT SINK, V.OUT			
		< CAPACITOR >			
C701	1-126-101-11	ELECT	100uF	20% 16V	
C702	1-126-101-11	ELECT	100uF	20% 16V	
C703	1-164-159-11	CERAMIC	0.1uF	50V	
C704	1-164-159-11	CERAMIC	0.1uF	50V	
C705	1-164-159-11	CERAMIC	0.1uF	50V	
C706	1-164-159-11	CERAMIC	0.1uF	50V	
C707	1-126-101-11	ELECT	100uF	20% 16V	
C708	1-164-159-11	CERAMIC	0.1uF	50V	
C709	1-164-159-11	CERAMIC	0.1uF	50V	
C710	1-162-294-31	CERAMIC	0.001uF	10% 50V	
C711	1-162-207-31	CERAMIC	22PF	5% 50V	
C712	1-162-207-31	CERAMIC	22PF	5% 50V	
C715	1-124-903-11	ELECT	1uF	20% 50V	
C716	1-162-302-11	CERAMIC	0.0022uF	30% 16V	
C717	1-162-302-11	CERAMIC	0.0022uF	30% 16V	
C718	1-162-294-31	CERAMIC	0.001uF	10% 50V	
C719	1-162-294-31	CERAMIC	0.001uF	10% 50V	
		< CONNECTOR >			
CN115	1-691-766-11	PLUG (MICRO CONNECTOR) 4P			
CN208	1-691-768-11	PLUG (MICRO CONNECTOR) 6P			
CNJ105	1-562-087-00	SOCKET, CONNECTOR 4P			
CNP104	1-766-800-11	CONNECTOR, BOARD TO BOARD 10P			
CNP106	1-766-801-11	CONNECTOR, BOARD TO BOARD 5P			
		< DIODE >			
D711	8-719-987-63	DIODE	1N4148M		
D712	8-719-987-63	DIODE	1N4148M		
D713	8-719-987-63	DIODE	1N4148M		
D714	8-719-987-63	DIODE	1N4148M		
D715	8-719-987-63	DIODE	1N4148M		
D716	8-719-987-63	DIODE	1N4148M		
D717	8-719-987-63	DIODE	1N4148M		
D718	8-719-987-63	DIODE	1N4148M		
D719	8-719-987-63	DIODE	1N4148M		
D720	8-719-987-63	DIODE	1N4148M		
D721	8-719-987-63	DIODE	1N4148M		
D722	8-719-987-63	DIODE	1N4148M		
D723	8-719-987-63	DIODE	1N4148M		
D725	8-719-024-99	DIODE	11ES2-NTA2B		
D726	8-719-024-99	DIODE	11ES2-NTA2B		
D727	8-719-024-99	DIODE	11ES2-NTA2B		
		< IC >			
IC701	8-759-325-18	IC	TMP47C200BN-H327		
IC702	8-759-635-63	IC	M51943BSL		
IC703	8-759-188-67	IC	X24C01P-S		
IC704	8-759-962-08	IC	BA6208		
IC705	8-759-231-53	IC	TA7805S		
IC706	8-759-231-53	IC	TA7805S		
		< TRANSISTOR >			
Q702	8-729-119-76	TRANSISTOR	2SA1175-HFE		
Q703	8-729-900-63	TRANSISTOR	DTA124ES		
Q704	8-729-900-63	TRANSISTOR	DTA124ES		
Q705	8-729-900-36	TRANSISTOR	DTC124ES		

Ref.No.	Part No.	Description				Remark
Q706	8-729-900-63	TRANSISTOR	DTA124ES			
Q707	8-729-900-63	TRANSISTOR	DTA124ES			
Q708	8-729-620-05	TRANSISTOR	2SC2603-EF			
		< RESISTOR >				
R701	1-249-429-11	CARBON	10K	5%	1/4W	
R702	1-249-429-11	CARBON	10K	5%	1/4W	
R703	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R704	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R705	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R706	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R708	1-249-433-11	CARBON	22K	5%	1/4W	
R709	1-249-433-11	CARBON	22K	5%	1/4W	
R710	1-249-433-11	CARBON	22K	5%	1/4W	
R711	1-249-433-11	CARBON	22K	5%	1/4W	
R712	1-249-433-11	CARBON	22K	5%	1/4W	
R713	1-249-433-11	CARBON	22K	5%	1/4W	
R714	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R715	1-247-807-31	CARBON	100	5%	1/4W	
R716	1-247-807-31	CARBON	100	5%	1/4W	
R717	1-247-807-31	CARBON	100	5%	1/4W	
R718	1-247-807-31	CARBON	100	5%	1/4W	
R719	1-247-807-31	CARBON	100	5%	1/4W	
R720	1-247-807-31	CARBON	100	5%	1/4W	
R721	1-247-807-31	CARBON	100	5%	1/4W	
R723	1-249-433-11	CARBON	22K	5%	1/4W	
R724	1-249-433-11	CARBON	22K	5%	1/4W	
R725	1-249-433-11	CARBON	22K	5%	1/4W	
R726	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R727	1-249-429-11	CARBON	10K	5%	1/4W	
R728	1-249-433-11	CARBON	22K	5%	1/4W	
R729	1-247-816-11	CARBON	240	5%	1/4W	
R730	1-249-433-11	CARBON	22K	5%	1/4W	
R731	1-249-433-11	CARBON	22K	5%	1/4W	
R732	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R733	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R734	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R735	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R738	1-249-413-11	CARBON	470	5%	1/4W	F
		< SWITCH >				
S701	1-572-095-21	SWITCH, ROTARY (INPUT SELECTOR)				
		< OSCILLATOR >				
X701	1-579-223-11	OSCILLATOR, CERAMIC (8MHz)				

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Ref.No.	Part No.	Description				Remark
*	A-4371-733-A	EQ BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C103	1-136-808-11	FILM	100PF	5%	100V	
C104	1-136-305-11	FILM	0.056uF	2%	0	
C105	1-136-304-11	FILM	0.016uF	2%	0	
C106	1-124-557-11	ELECT	1000uF	20%	25V	
C107	1-136-252-00	FILM	0.0015uF	5%	100V	
C109	1-110-495-51	ELECT	220uF	20%	25V	
C110	1-136-817-91	FILM	0.0033uF	5%	100V	
C111	1-136-817-91	FILM	0.0033uF	5%	100V	
C112	1-124-916-11	ELECT	22uF	20%	63V	
C114	1-124-915-11	ELECT	10uF	20%	63V	
C153	1-136-808-11	FILM	100PF	5%	100V	
C154	1-136-305-11	FILM	0.056uF	2%	0	
C155	1-136-304-11	FILM	0.016uF	2%	0	
C156	1-124-557-11	ELECT	1000uF	20%	25V	
C157	1-136-252-00	FILM	0.0015uF	5%	100V	
C159	1-110-495-51	ELECT	220uF	20%	25V	
C160	1-136-817-91	FILM	0.0033uF	5%	100V	
C161	1-136-817-91	FILM	0.0033uF	5%	100V	
C162	1-124-916-11	ELECT	22uF	20%	63V	
C164	1-124-915-11	ELECT	10uF	20%	63V	
		< CONNECTOR >				
CN201	1-691-766-21	PLUG (MICRO CONNECTOR) 4P				
CN206	1-691-766-21	PLUG (MICRO CONNECTOR) 4P				
		< TRANSISTOR >				
Q101	8-729-203-21	TRANSISTOR	2SK389-GR			
Q102	8-729-203-21	TRANSISTOR	2SK389-GR			
Q103	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q104	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q105	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q106	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q107	8-729-201-56	TRANSISTOR	2SK246-GR2			
Q108	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q109	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q110	8-729-201-56	TRANSISTOR	2SK246-GR2			
Q111	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q112	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q113	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q114	8-729-018-19	TRANSISTOR	2SK2013-Y			
Q115	8-729-018-21	TRANSISTOR	2SJ313-Y			
Q151	8-729-203-21	TRANSISTOR	2SK389-GR			
Q152	8-729-203-21	TRANSISTOR	2SK389-GR			
Q153	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q154	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q155	8-729-201-53	TRANSISTOR	2SA1015-GR			

Ref.No.	Part No.	Description				Remark
Q156	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q157	8-729-201-56	TRANSISTOR	2SK246-GR2			
Q158	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q159	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q160	8-729-201-56	TRANSISTOR	2SK246-GR2			
Q161	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q162	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q163	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q164	8-729-018-19	TRANSISTOR	2SK2013-Y			
Q165	8-729-018-21	TRANSISTOR	2SJ313-Y			
		< RESISTOR >				
R104	1-247-700-11	CARBON	100	5%	1/4W	F
R105	1-249-465-11	CARBON	47K	5%	1/4W	
R106	1-249-875-91	CARBON	10	1%	1/4W	
R107	1-249-900-91	CARBON	110	1%	1/4W	
R108	1-249-966-91	CARBON	62K	1%	1/4W	
R109	1-249-939-11	CARBON	4.7K	1%	1/4W	
R110	1-214-958-00	METAL	560K	1%	1/4W	
R111	1-249-586-11	CARBON	27K	5%	1/4W	
R112	1-247-720-11	CARBON	3.9K	5%	1/4W	F
R113	1-249-529-11	CARBON	110	5%	1/4W	
R114	1-249-529-11	CARBON	110	5%	1/4W	
R115	1-247-706-11	CARBON	330	5%	1/4W	F
R116	1-247-708-11	CARBON	470	5%	1/4W	F
R117	1-247-725-11	CARBON	10K	5%	1/4W	F
R118	1-249-596-11	CARBON	68K	5%	1/4W	
R119	1-247-720-11	CARBON	3.9K	5%	1/4W	F
R120	1-249-928-11	CARBON	1.6K	5%	1/4W	
R121	1-247-138-00	CARBON	2K	5%	1/4W	
R122	1-247-721-11	CARBON	4.7K	5%	1/4W	F
R123	1-247-700-11	CARBON	100	5%	1/4W	F
R124	1-247-700-11	CARBON	100	5%	1/4W	F
R125	1-249-504-11	CARBON	10	5%	1/4W	
R126	1-247-700-11	CARBON	100	5%	1/4W	F
R127	1-249-469-11	CARBON	100K	5%	1/4W	
R154	1-247-700-11	CARBON	100	5%	1/4W	F
R155	1-249-465-11	CARBON	47K	5%	1/4W	
R156	1-249-875-91	CARBON	10	1%	1/4W	
R157	1-249-900-91	CARBON	110	1%	1/4W	
R158	1-249-966-91	CARBON	62K	1%	1/4W	
R159	1-249-939-11	CARBON	4.7K	1%	1/4W	
R160	1-214-958-00	METAL	560K	1%	1/4W	
R161	1-249-586-11	CARBON	27K	5%	1/4W	
R162	1-247-720-11	CARBON	3.9K	5%	1/4W	F
R163	1-249-529-11	CARBON	110	5%	1/4W	
R164	1-249-529-11	CARBON	110	5%	1/4W	
R165	1-247-706-11	CARBON	330	5%	1/4W	F
R166	1-247-708-11	CARBON	470	5%	1/4W	F
R167	1-247-725-11	CARBON	10K	5%	1/4W	F
R168	1-249-596-11	CARBON	68K	5%	1/4W	
R169	1-247-720-11	CARBON	3.9K	5%	1/4W	F
R170	1-249-928-11	CARBON	1.6K	5%	1/4W	
R171	1-247-138-00	CARBON	2K	5%	1/4W	
R172	1-247-721-11	CARBON	4.7K	5%	1/4W	F
R173	1-247-700-11	CARBON	100	5%	1/4W	F
R174	1-247-700-11	CARBON	100	5%	1/4W	F
R175	1-249-504-11	CARBON	10	5%	1/4W	
R176	1-247-700-11	CARBON	100	5%	1/4W	F
R177	1-249-469-11	CARBON	100K	5%	1/4W	
		< VARIABLE RESISTOR >				
RV101	1-237-457-21	RES, ADJ, CARBON 2K				
RV151	1-237-457-21	RES, ADJ, CARBON 2K				
		< RELAY >				
RY101	1-515-725-11	RELAY				
RY151	1-515-725-11	RELAY				
**********						
*	1-654-044-11	HP BOARD				
		********				
		< CONNECTOR >				
CN212	1-691-768-11	PLUG (MICRO CONNECTOR) 6P				
		< JACK >				
J401	1-580-439-11	JACK, LARGE TYPE (HEADPHONES)				
**********						
*	A-4371-732-A	INPUT BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C102	1-162-284-31	CERAMIC	150PF	10%	50V	
C152	1-162-284-31	CERAMIC	150PF	10%	50V	
C201	1-136-808-11	FILM	100PF	5%	100V	
C251	1-136-808-11	FILM	100PF	5%	100V	
		< CONNECTOR >				
CN101	1-691-766-21	PLUG (MICRO CONNECTOR) 4P				
* CN102	4-924-264-21	TERMINAL, MOUNT				
* CN104	1-564-507-11	PLUG, CONNECTOR 4P				
CNJ101	1-766-796-11	CONNECTOR, BOARD TO BOARD 12P				
CNJ102	1-766-796-11	CONNECTOR, BOARD TO BOARD 12P				
* CNJ103	1-691-244-11	SOCKET, CONNECTOR 10P				
		< JACK >				
J101	1-766-795-11	JACK (PHONO)				

INPUT LED LEVER-SW LOGIC

Ref.No.	Part No.	Description				Remark
J201	1-766-795-21	JACK (CD, TUNER)				
J202	1-766-795-21	JACK (TAPE2/MD REC OUT, AUX)				
J203	1-766-795-21	JACK (TAPE1/DAT REC OUT, TAPE2/MD PLAY)				
J204	1-766-795-21	JACK (PRE-OUT, TAPE1/DAT PLAY)				
J251	1-766-795-31	JACK (CD, TUNER)				
J252	1-766-795-31	JACK (TAPE2/MD REC OUT, AUX)				
J253	1-766-795-31	JACK (TAPE1/DAT REC OUT, TAPE2/MD PLAY)				
J254	1-766-795-31	JACK (PRE-OUT, TAPE1/DAT PLAY)				
		< RESISTOR >				
R103	1-259-416-11	CARBON	330	5%	1/6W	
R153	1-259-416-11	CARBON	330	5%	1/6W	
R201	1-249-210-11	CARBON	1K	5%	1/3W	
R202	1-247-713-11	CARBON	1K	5%	1/4W	F
R203	1-247-713-11	CARBON	1K	5%	1/4W	F
R251	1-249-210-11	CARBON	1K	5%	1/3W	
R252	1-247-713-11	CARBON	1K	5%	1/4W	F
R253	1-247-713-11	CARBON	1K	5%	1/4W	F
		< RELAY >				
RY201	1-515-622-11	RELAY				
RY202	1-515-622-11	RELAY				
RY203	1-515-622-11	RELAY				
RY204	1-515-622-11	RELAY				
RY205	1-515-622-11	RELAY				
RY206	1-515-622-11	RELAY				
**********						
*	1-654-055-11	LED BOARD				
		*********				
		< CONNECTOR >				
CNJ104	1-766-797-11	CONNECTOR, BOARD TO BOARD 10P				
		< DIODE >				
D701	8-719-301-49	DIODE	SEL2810A	(PHONO/MC)		
D702	8-719-301-49	DIODE	SEL2810A	(PHONO/MM)		
D703	8-719-301-49	DIODE	SEL2810A	(TUNER)		
D704	8-719-301-49	DIODE	SEL2810A	(BALANCED LINE)		
D705	8-719-301-49	DIODE	SEL2810A	(CD)		
D706	8-719-301-49	DIODE	SEL2810A	(AUX)		
D707	8-719-301-49	DIODE	SEL2810A	(TAPE2/MD)		
D708	8-719-301-49	DIODE	SEL2810A	(TAPE1/DAT)		
D709	8-719-301-49	DIODE	SEL2810A	(TAPE MONITOR)		
		< RESISTOR >				
R707	1-247-816-11	CARBON	240	5%	1/4W	
R722	1-247-816-11	CARBON	240	5%	1/4W	
**********						
*	1-654-049-11	LEVER-SW BOARD				
		**********				
		< CONNECTOR >				
CNP105	1-560-941-00	PIN, CONNECTOR 4P				
		< SWITCH >				
S702	1-762-165-11	SWITCH, LEVER SLIDE (TAPE1/TAPE2/SOURCE)				
**********						
*	A-4371-734-A	LOGIC BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C301	1-136-808-11	FILM	100PF	5%	100V	
C302	1-136-808-11	FILM	100PF	5%	100V	
C303	1-124-916-11	ELECT	22uF	20%	63V	
C304	1-136-817-91	FILM	0.0033uF	5%	100V	
C305	1-136-817-91	FILM	0.0033uF	5%	100V	
C306	1-102-233-00	CERAMIC	33PF	10%	500V	
C307	1-102-233-00	CERAMIC	33PF	10%	500V	
C351	1-136-808-11	FILM	100PF	5%	100V	
C352	1-136-808-11	FILM	100PF	5%	100V	
C353	1-124-916-11	ELECT	22uF	20%	63V	
C354	1-136-817-91	FILM	0.0033uF	5%	100V	
C355	1-136-817-91	FILM	0.0033uF	5%	100V	
C356	1-102-233-00	CERAMIC	33PF	10%	500V	
C357	1-102-233-00	CERAMIC	33PF	10%	500V	
C801	1-162-302-11	CERAMIC	0.0022uF	30%	16V	
C802	1-162-302-11	CERAMIC	0.0022uF	30%	16V	
C803	1-164-159-11	CERAMIC	0.1uF		50V	
C804	1-164-159-11	CERAMIC	0.1uF		50V	
C805	1-164-159-11	CERAMIC	0.1uF		50V	
C806	1-164-159-11	CERAMIC	0.1uF		50V	
C807	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN106	1-691-766-21	PLUG (MICRO CONNECTOR) 4P				
* CN107	1-564-506-11	PLUG, CONNECTOR 3P				
* CN108	1-564-521-11	PLUG, CONNECTOR 6P				
CNP101	1-766-799-11	CONNECTOR, BOARD TO BOARD 12P				
CNP102	1-766-799-11	CONNECTOR, BOARD TO BOARD 12P				
		< DIODE >				
D617	8-719-024-99	DIODE	11ES2-NTA2B			
D801	8-719-987-63	DIODE	1N4148M			
D802	8-719-987-63	DIODE	1N4148M			
D803	8-719-987-63	DIODE	1N4148M			
D804	8-719-987-63	DIODE	1N4148M			

Ref.No.	Part No.	Description				Remark
D805	8-719-987-63	DIODE	1N4148M			
D806	8-719-987-63	DIODE	1N4148M			
D807	8-719-987-63	DIODE	1N4148M			
D808	8-719-987-63	DIODE	1N4148M			
D809	8-719-987-63	DIODE	1N4148M			
D810	8-719-987-63	DIODE	1N4148M			
D811	8-719-987-63	DIODE	1N4148M			
D812	8-719-987-63	DIODE	1N4148M			
		< IC >				
IC301	8-759-259-12	IC	OPA2604AP			
IC351	8-759-259-12	IC	OPA2604AP			
IC801	8-759-233-43	IC	TC74HC595AP			
IC802	8-759-233-43	IC	TC74HC595AP			
IC803	8-759-232-15	IC	TC74HC14AP			
		< TRANSISTOR >				
Q801	8-729-900-65	TRANSISTOR	DTA144ES			
Q802	8-729-900-65	TRANSISTOR	DTA144ES			
Q803	8-729-900-65	TRANSISTOR	DTA144ES			
Q804	8-729-900-65	TRANSISTOR	DTA144ES			
Q805	8-729-900-65	TRANSISTOR	DTA144ES			
Q806	8-729-900-65	TRANSISTOR	DTA144ES			
Q807	8-729-900-65	TRANSISTOR	DTA144ES			
Q808	8-729-900-65	TRANSISTOR	DTA144ES			
Q809	8-729-900-65	TRANSISTOR	DTA144ES			
Q810	8-729-900-65	TRANSISTOR	DTA144ES			
Q811	8-729-900-65	TRANSISTOR	DTA144ES			
Q812	8-729-900-65	TRANSISTOR	DTA144ES			
		< RESISTOR >				
R301	1-247-700-11	CARBON	100	5%	1/4W	F
R302	1-247-700-11	CARBON	100	5%	1/4W	F
R303	1-247-725-11	CARBON	10K	5%	1/4W	F
R304	1-247-725-11	CARBON	10K	5%	1/4W	F
R305	1-249-934-11	CARBON	3K	1%	1/4W	
R306	1-249-944-11	CARBON	7.5K	1%	1/4W	
R307	1-249-944-11	CARBON	7.5K	1%	1/4W	
R308	1-249-934-11	CARBON	3K	1%	1/4W	
R309	1-247-712-11	CARBON	820	5%	1/4W	F
R310	1-249-469-11	CARBON	100K	5%	1/4W	
R311	1-247-138-00	CARBON	2K	5%	1/4W	
R351	1-247-700-11	CARBON	100	5%	1/4W	F
R352	1-247-700-11	CARBON	100	5%	1/4W	F
R353	1-247-725-11	CARBON	10K	5%	1/4W	F
R354	1-247-725-11	CARBON	10K	5%	1/4W	F
R355	1-249-934-11	CARBON	3K	1%	1/4W	
R356	1-249-944-11	CARBON	7.5K	1%	1/4W	
R357	1-249-944-11	CARBON	7.5K	1%	1/4W	
R358	1-249-934-11	CARBON	3K	1%	1/4W	
R359	1-247-712-11	CARBON	820	5%	1/4W	F
R360	1-249-469-11	CARBON	100K	5%	1/4W	
R361	1-247-138-00	CARBON	2K	5%	1/4W	
R801	1-249-417-11	CARBON	1K	5%	1/4W	F
R802	1-249-417-11	CARBON	1K	5%	1/4W	F
R803	1-249-417-11	CARBON	1K	5%	1/4W	F
R804	1-249-417-11	CARBON	1K	5%	1/4W	F
		< RELAY >				
RY207	1-515-622-11	RELAY				
RY208	1-515-622-11	RELAY				
RY209	1-515-622-11	RELAY				

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*	A-4371-722-A	MAIN BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C401	1-136-808-11	FILM	100PF	5%	100V	
C403	1-104-263-00	POLYSTYRENE	15PF	10%	125V	
C404	1-104-233-00	POLYSTYRENE	220PF	5%	125V	
C406	1-110-495-51	ELECT	220uF	20%	25V	
C407	1-136-817-91	FILM	0.0033uF	5%	100V	
C408	1-136-817-91	FILM	0.0033uF	5%	100V	
C409	1-124-916-11	ELECT	22uF	20%	63V	
C410	1-110-495-51	ELECT	220uF	20%	25V	
C414	1-124-918-11	ELECT	47uF	20%	63V	
C451	1-136-808-11	FILM	100PF	5%	100V	
C453	1-104-263-00	POLYSTYRENE	15PF	10%	125V	
C454	1-104-233-00	POLYSTYRENE	220PF	5%	125V	
C456	1-110-495-51	ELECT	220uF	20%	25V	
C457	1-136-817-91	FILM	0.0033uF	5%	100V	
C458	1-136-817-91	FILM	0.0033uF	5%	100V	
C459	1-124-916-11	ELECT	22uF	20%	63V	
C460	1-110-495-51	ELECT	220uF	20%	25V	
C464	1-124-918-11	ELECT	47uF	20%	63V	
C501	1-104-326-11	POLYSTYRENE	7PF	1PF	125V	
C502	1-124-916-11	ELECT	22uF	20%	63V	
C551	1-104-326-11	POLYSTYRENE	7PF	1PF	125V	
C552	1-124-916-11	ELECT	22uF	20%	63V	
C611	1-124-557-11	ELECT	1000uF	20%	25V	
C612	1-110-494-11	CAP, ELECT	2200uF			
C614	1-124-557-11	ELECT	1000uF	20%	25V	
C615	1-110-494-11	CAP, ELECT	2200uF			
		< CONNECTOR >				
CN112	1-691-768-11	PLUG (MICRO CONNECTOR) 6P				
CN113	1-691-766-11	PLUG (MICRO CONNECTOR) 4P				
* CN114	1-564-104-00	PIN, CONNECTOR (B3P-VH) 3P				
* CN202	4-924-264-21	TERMINAL, MOUNT				
CN203	1-691-768-11	PLUG (MICRO CONNECTOR) 6P				

MAIN

Ref. No.	Part No.	Description		Remark
* CN207	1-564-506-11	PLUG, CONNECTOR 3P		
* CN210	1-564-507-11	PLUG, CONNECTOR 4P		
CN211	1-564-505-11	PLUG, CONNECTOR 2P		
		< DIODE >		
D401	8-719-987-63	DIODE	1N4148M	
D402	8-719-987-63	DIODE	1N4148M	
D451	8-719-987-63	DIODE	1N4148M	
D607	8-719-000-78	DIODE	UZL-7L2	
D608	8-719-987-63	DIODE	1N4148M	
D609	8-719-987-63	DIODE	1N4148M	
D612	8-719-000-78	DIODE	UZL-7L2	
D613	8-719-987-63	DIODE	1N4148M	
D614	8-719-987-63	DIODE	1N4148M	
		< IC >		
IC501	8-759-259-12	IC	OPA2604AP	
IC551	8-759-259-12	IC	OPA2604AP	
		< TRANSISTOR >		
Q401	8-729-203-21	TRANSISTOR	2SK389-GR	
Q402	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q403	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q404	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q405	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q406	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q407	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q408	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q409	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q410	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q411	8-729-018-19	TRANSISTOR	2SK2013-Y	
Q412	8-729-018-21	TRANSISTOR	2SJ313-Y	
Q451	8-729-203-21	TRANSISTOR	2SK389-GR	
Q452	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q453	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q454	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q455	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q456	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q457	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q458	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q459	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q460	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q461	8-729-018-19	TRANSISTOR	2SK2013-Y	
Q462	8-729-018-21	TRANSISTOR	2SJ313-Y	
Q601	8-729-107-53	TRANSISTOR	2SC2275A-P	
Q602	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q603	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q604	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q605	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q606	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q607	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q608	8-729-141-10	TRANSISTOR	2SA985A-QP	
Q609	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q610	8-729-201-56	TRANSISTOR	2SK246-GR2	
Q611	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q612	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q613	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q614	8-729-119-78	TRANSISTOR	2SC2785-HFE	
		< RESISTOR >		
R401	1-249-995-11	CARBON	1M 5% 1/4W	
R402	1-247-241-00	CARBON	1.1K 5% 1/3W	
R403	1-249-234-11	CARBON	10K 5% 1/3W	
R404	1-249-586-11	CARBON	27K 5% 1/4W	
R405	1-247-720-11	CARBON	3.9K 5% 1/4W	F
R406	1-247-717-11	CARBON	2.2K 5% 1/4W	F
R407	1-247-717-11	CARBON	2.2K 5% 1/4W	F
R408	1-247-721-11	CARBON	4.7K 5% 1/4W	F
R409	1-249-551-11	CARBON	910 5% 1/4W	
R410	1-249-551-11	CARBON	910 5% 1/4W	
R411	1-247-725-11	CARBON	10K 5% 1/4W	F
R412	1-247-704-11	CARBON	220 5% 1/4W	F
R413	1-247-712-11	CARBON	820 5% 1/4W	F
R414	1-247-713-11	CARBON	1K 5% 1/4W	F
R415	1-247-721-11	CARBON	4.7K 5% 1/4W	F
R416	1-247-700-11	CARBON	100 5% 1/4W	F
R417	1-247-700-11	CARBON	100 5% 1/4W	F
R418	1-249-504-11	CARBON	10 5% 1/4W	
R419	1-259-664-51	CARBON	330 2% 1W	
R420	1-247-725-11	CARBON	10K 5% 1/4W	F
R421	1-249-469-11	CARBON	100K 5% 1/4W	
R422	1-249-469-11	CARBON	100K 5% 1/4W	
R423	1-249-218-11	CARBON	2.2K 5% 1/3W	
R451	1-249-995-11	CARBON	1M 5% 1/4W	
R452	1-247-241-00	CARBON	1.1K 5% 1/3W	
R453	1-249-234-11	CARBON	10K 5% 1/3W	
R454	1-249-586-11	CARBON	27K 5% 1/4W	
R455	1-247-720-11	CARBON	3.9K 5% 1/4W	F
R456	1-247-717-11	CARBON	2.2K 5% 1/4W	F
R457	1-247-717-11	CARBON	2.2K 5% 1/4W	F
R458	1-247-721-11	CARBON	4.7K 5% 1/4W	F
R459	1-249-551-11	CARBON	910 5% 1/4W	
R460	1-249-551-11	CARBON	910 5% 1/4W	
R461	1-247-725-11	CARBON	10K 5% 1/4W	F
R462	1-247-704-11	CARBON	220 5% 1/4W	F
R463	1-247-712-11	CARBON	820 5% 1/4W	F
R464	1-247-713-11	CARBON	1K 5% 1/4W	F
R465	1-247-721-11	CARBON	4.7K 5% 1/4W	F
R466	1-247-700-11	CARBON	100 5% 1/4W	F
R467	1-247-700-11	CARBON	100 5% 1/4W	F

Ref.No.	Part No.	Description				Remark
R468	1-249-504-11	CARBON	10	5%	1/4W	
R469	1-259-664-51	CARBON	330	2%	1W	
R470	1-247-725-11	CARBON	10K	5%	1/4W	F
R471	1-249-469-11	CARBON	100K	5%	1/4W	
R472	1-249-469-11	CARBON	100K	5%	1/4W	
R473	1-249-218-11	CARBON	2.2K	5%	1/3W	
R501	1-249-234-11	CARBON	10K	5%	1/3W	
R502	1-249-234-11	CARBON	10K	5%	1/3W	
R503	1-259-664-51	CARBON	330	2%	1W	
R506	1-247-739-11	CARBON	100	5%	1/2W	F
R511	1-247-725-11	CARBON	10K	5%	1/4W	F
R512	1-249-469-11	CARBON	100K	5%	1/4W	
R551	1-249-234-11	CARBON	10K	5%	1/3W	
R552	1-249-234-11	CARBON	10K	5%	1/3W	
R553	1-259-664-51	CARBON	330	2%	1W	
R556	1-247-739-11	CARBON	100	5%	1/2W	F
R561	1-247-725-11	CARBON	10K	5%	1/4W	F
R562	1-249-469-11	CARBON	100K	5%	1/4W	
R603	1-247-719-11	CARBON	3.3K	5%	1/4W	F
R604	1-249-504-11	CARBON	10	5%	1/4W	
R605	1-249-504-11	CARBON	10	5%	1/4W	
R606	1-247-706-11	CARBON	330	5%	1/4W	F
R607	1-247-725-11	CARBON	10K	5%	1/4W	F
R608	1-247-704-11	CARBON	220	5%	1/4W	F
R609	1-249-234-11	CARBON	10K	5%	1/3W	
R610	1-249-226-11	CARBON	4.7K	5%	1/3W	
R611	1-247-719-11	CARBON	3.3K	5%	1/4W	F
R612	1-249-504-11	CARBON	10	5%	1/4W	
R613	1-249-504-11	CARBON	10	5%	1/4W	
R614	1-247-706-11	CARBON	330	5%	1/4W	F
R615	1-247-725-11	CARBON	10K	5%	1/4W	F
R616	1-247-704-11	CARBON	220	5%	1/4W	F
R617	1-249-234-11	CARBON	10K	5%	1/3W	
R618	1-249-226-11	CARBON	4.7K	5%	1/3W	
		< VARIABLE RESISTOR >				
RV401	1-237-457-21	RES, ADJ, CARBON 2K				
RV451	1-237-457-21	RES, ADJ, CARBON 2K				
		< RELAY >				
RY401	1-515-622-11	RELAY				
RY402	1-515-622-11	RELAY				
RY451	1-515-622-11	RELAY				

****

Ref.No.	Part No.	Description				Remark
*	1-654-043-11	PS BOARD				
		********				
	1-533-183-11	HOLDER, FUSE				
	1-533-183-11	HOLDER, FUSE				
		< CAPACITOR >				
C601	1-136-814-11	FILM	0.001uF	5%	100V	
C602	1-136-880-11	FILM	2.2uF	10%	160V	
C603	1-130-471-00	MYLAR	0.001uF	5%	50V	
C604	1-136-177-00	FILM	1uF	5%	50V	
C605	1-136-177-00	FILM	1uF	5%	50V	
C606	1-110-493-11	CAP, ELECT	4700uF			
C607	1-110-493-11	CAP, ELECT	4700uF			
C608	1-128-489-11	ELECT	3300uF	20%	16V	
C609	1-124-927-11	ELECT	4.7uF	20%	100V	
C610	1-128-489-11	ELECT	3300uF	20%	16V	
		< CONNECTOR >				
CN1	1-564-321-00	PIN, CONNECTOR 2P				
CN2	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P				
* CN5	1-564-243-11	PIN, CONNECTOR 6P				
CN215	1-691-766-11	PLUG (MICRO CONNECTOR) 4P				
		< DIODE >				
D601	8-719-200-39	DIODE C16P20F				
D602	8-719-200-40	DIODE C16P20FR				
D603	8-719-911-55	DIODE U05G				
D604	8-719-911-55	DIODE U05G				
D605	8-719-911-55	DIODE U05G				
D606	8-719-911-55	DIODE U05G				
		< FUSE >				
⚠F1	1-532-078-00	FUSE, TIME LAG (T1AL 250V) (AEP, G)				
⚠F1	1-532-742-11	FUSE, GLASS TUBE (1.6A 125V) (US)				
		< TRANSISTOR >				
Q701	8-729-620-05	TRANSISTOR 2SC2603-EF				
		< RESISTOR >				
⚠R601	1-212-958-00	FUSIBLE	10	5%	1/2W	F
⚠R602	1-212-958-00	FUSIBLE	10	5%	1/2W	F
R736	1-249-417-11	CARBON	1K	5%	1/4W	F
R737	1-249-422-11	CARBON	2.7K	5%	1/4W	F
		< THERMISTOR(POSITIVE) >				
THP601	1-810-782-11	THERMISTOR, POSITIVE 3.3 (US, AEP)				
THP602	1-810-782-11	THERMISTOR, POSITIVE 3.3 (US, AEP)				

****

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SIRCS VOLUME

Ref. No.	Part No.	Description	Remark
*	1-654-048-11	SIRCS BOARD	
		**********	
		< CAPACITOR >	
C714	1-164-159-11	CERAMIC 0.1uF	50V
		< CONNECTOR >	
CNJ106	1-766-798-11	CONNECTOR, BOARD TO BOARD 5P	
		< DIODE >	
D710	8-719-301-49	DIODE SEL2810A (MUTING)	
		< IC >	
IC707	8-749-923-43	IC GP1U57XB	
		< SWITCH >	
S703	1-554-303-21	SWITCH, TACTILE (MUTING)	
**********			
*	1-654-046-11	VOLUME BOARD	
		**********	
*	4-942-204-01	PLATE, GROUND (ET201)	
		< CAPACITOR >	
C713	1-136-165-00	FILM 0.1uF 5%	50V
		< CONNECTOR >	
CN204	1-691-766-11	PLUG (MICRO CONNECTOR) 4P	
CN205	1-691-767-11	PLUG (MICRO CONNECTOR) 5P	
* CN209	1-564-506-11	PLUG, CONNECTOR 3P	
		< DIODE >	
D210	8-719-987-63	DIODE 1N4148M	
D211	8-719-987-63	DIODE 1N4148M	
		< VARIABLE RESISTOR >	
RV201	1-223-758-11	RES, VAR, CARBON 20K/20K (ATTENUATOR)	
		< RELAY >	
RY210	1-515-622-11	RELAY	
RY211	1-515-622-11	RELAY	
**********			

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
⚠51	1-559-479-11	CORD, POWER (US)	
⚠51	1-575-953-11	CORD, POWER (AEP, G)	
⚠F1	1-532-078-00	FUSE, TIME LAG (T1AL 250V) (AEP, G)	
⚠F1	1-532-742-11	FUSE, GLASS TUBE (1.6A 125V) (US)	
S701	1-572-095-21	SWITCH, ROTARY	
⚠T901	1-427-641-11	TRANSFORMER, POWER (AEP, G)	
⚠T901	1-427-642-11	TRANSFORMER, POWER (US)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-467-890-11	COMMANDER, STANDARD (RM-J90)	(US, AEP, G (BLACK))
	1-467-890-21	COMMANDER, STANDARD (RM-J90) (G (GOLD))	
	1-558-271-11	CORD, CONNECTION (AUDIO 108cm)	
	3-759-991-11	MANUAL, INSTRUCTION (US, AEP)	(ENGLISH, FRENCH, SPANISH, PORTUGUESE)
	3-759-991-41	MANUAL, INSTRUCTION (AEP, G)	(GERMAN, DUTCH, SWEDISH, ITALIAN)
	4-962-615-01	COVER, BATTERY (for RM-J90)	(US, AEP, G (BLACK))
	4-962-615-11	COVER, BATTERY (for RM-J90) (G (GOLD))	
*	4-970-081-01	INDIVIDUAL CARTON	
*	4-970-082-01	CUSHION	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-682-247-09	SCREW +K 3X6	
#2	7-682-548-09	SCREW (3X8)	
#3	7-682-575-09	SCREW +B 5X10 (AEP, G)	
#4	7-688-005-01	WASHER (5. SMALL)	

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Consumer A&V Products Company
Home A&V Products Div.

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SONY
SERVICE MANUAL

US Model
AEP Model

CORRECTION-1

Correct your service manual as shown below.

——— : **indicates corrected portion.**

Page	INCORRECT				CORRECT		
	No.	Part No.	Description	Remark	Part No.	Description	Remark
33		***** LOGIC BOARD *****			***** LOGIC BOARD *****		
	Q801	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q802	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q803	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q804	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q805	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q806	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q807	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q808	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q809	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q810	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q811	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	
	Q812	8-729-900-65	TRANSISTOR DTA144ES		8-729-029-46	TRANSISTOR DTA143ESA	

(SPM-96032)

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Consumer A&V Products Company
Home A&V Products Div.

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